CLAIMS

1. A method of creating a threshold matrix for stochastic screening, comprising the steps of:

providing a digital halftone image representation;

printing said halftone image;

obtaining dot-gain measurements of pixels of said printed image; and

using said obtained dot-gain measurements for creating an improved threshold matrix.

2. The method of claim 1, wherein said step of obtaining dot-gain measurements comprises obtaining dot-gain measurements of pixel agglomerates.

3. A method of creating a threshold matrix for stochastic screening for an initial target gray level, comprising the steps of:

i. providing an initial threshold matrix;

ii. providing a merit function;

iii. providing a geometrical function;

iv. calculating the value of said merit function for all non-filled pixels in said matrix;

v. filling one of said pixels for which the value of said merit function is highest;

vi. updating values of all pixels in said matrix adjacent to said filled pixel according to said geometrical function;

vii. calculating effective percentage of surface coverage in said matrix;

viii. comparing said calculated effective coverage with said target gray level;

ix. repeating steps (d) through (h) until said effective coverage is greater or equal to said target gray level; and

x. storing said matrix.

4. The method of claim 3, additionally comprising the steps of:

providing said stored matrix;

providing a new target gray level, said new target gray level higher than said initial target gray level; and

performing said steps (d) through (i).

5. A method of creating a threshold matrix for stochastic screening for an initial target gray level, comprising the steps of:

i. providing a threshold matrix representing a nominal screen pattern for said target gray level;

ii. providing a merit function;

iii. providing a geometrical function;

iv. updating values of all non-filled pixels in said matrix according to said geometrical function;

v. calculating a value M1 of said merit function for all filled pixels in said matrix;

vi. calculating a value M2 of said merit function for all non-filled pixels in said matrix;

vii. calculating a global value G1 for said merit function for all pixels in matrix;

viii. swapping values of pixels with highest M1 and M2 values, respectively;

ix. updating values of all non-filled pixels in said matrix affected by said swapping according to said geometrical function;

x. calculating a global value G2 of said merit function for all pixels in said matrix;

xi. comparing G1 with G2;

xii. repeating said steps (e) through (k) until said global value G2 is smaller than said global value G1;

xiii. restoring said swapped values;

xiv. calculating effective percentage of surface coverage in said matrix; and

xv.storing said matrix.

6. The method of claim 5, additionally comprising the steps of:

p. providing said stored matrix;

q. providing a new target gray level, said new target gray level higher than said initial target gray level;

r. calculating a value M2 of said merit function for all non-filled pixels in said matrix;

s. filling one of said pixels for which said merit function is highest;

t. updating values of all non-filled pixels in said matrix adjacent to said filled pixel according to said geometrical function;

u. calculating effective percentage of surface coverage in said matrix;

v. comparing said calculated effective coverage with said new target gray level;

w. repeating steps (r) through (v) until said effective coverage is greater or equal to said new target gray level; and

x. storing said matrix.

7. The method of claim 5, additionally comprising the steps of:

xvi. providing said stored matrix;

xvii. providing a new target gray level, said new target gray level lower than said initial target gray level;

xviii. calculating a value M1 of said merit function for all filled pixels in said matrix;

xix. removing one of said pixels for which said value M1 is highest;

xx. updating values of all non-filled pixels in said matrix adjacent to said removed pixel according to said geometrical function;

xxi. calculating effective percentage of surface coverage in said matrix;

xxii. comparing said calculated effective coverage with said new target gray level;

xxiii. repeating steps (r) through (v) until said effective coverage is greater or equal to said new target gray level; and

xxiv. storing said matrix.

8. The method according to any one of claims 3 - 7, wherein said merit function represents dot-gain of pixels and/or pixel agglomerates.

9. The method according to any one of claims 3 - 7, wherein said geometrical function represents halftone dot shapes.

10. The method of claim 9, wherein said geometrical function is a square.

11. The method of claim 9, wherein said geometrical function is a circle.